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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,859	08/21/2003	Hiroyuki Kakiuchi	241676US0XCONT	6303

22850 7590 03/20/2007
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

JIANG, CHEN WEN

ART UNIT	PAPER NUMBER
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3744

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/20/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/20/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/644,859	Applicant(s) KAKIUCHI ET AL.	
	Examiner Chen-Wen Jiang	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 41-62 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-19 and 53-60 is/are allowed.
- 6) ☒ Claim(s) 1-11, 20, 21, 41-52, 61 and 62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20061219</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The IDS and amendment presented by the applicant have been duly noted. However, further review of the prior art of record has prompted the presentation of new rejections presented below. In view of such, the previous rejections in the first office action have been withdrawn. Examiner has difficulty to identify/match each reference in the file. The following rejections are based on the best understanding of the supplied references.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-11,20,21,41-52,61 and 62 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Komarneni et al. (AW IDS filed 12/19/2006) in view of Meier et al. (Atlas of Zeolite Structure Type) or Hiroyuki et al. (JP 11-223411) or Mizota et al. (JP 2001-239156).

In regard to claims 1,4,9,20,42,45,50 and 61, Komarneni et al. disclose a high performance nanocomposite desiccation materials. The dry agent comprise a zeolite (adsorption/desorption) for gas thermal vaporization and cooling systems (heat pump) (p.18). It is described that water adsorption/desorption amount was measured at 25⁰C (p.19, line 4). Table 1 discloses the dry agent zeolite comprises aluminum, phosphorus and heteroatom. The water absorption amount of SAPO-17 is 0.306 g/g when a relative vapor pressure (P/P₀) = 0.9 (p.20,

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Table 1); and the adsorption amount change of SAPO-17 when a relative vapor pressure is changed by 0.15 in the relative vapor pressure range of 0.05 to 0.30, which is obtained based on the adsorption isotherm, is about 0.20 g/g (p.33, Fig. 15b). Therefore, SAPO-17 (CHA term) disclosed in Komarneni et al. is the adsorbent that satisfies the condition of the constituent features.

In regard to claims 5,6,46 and 47, the species of SAPO-17 is disclosed, the gel of ICHA:0.1SiO₂:Al₂O₃:P₂O₅:50H₂O is disclosed as a specific example of the composition. In the composition of Table 1: an atomic ratio of Si:Al:P is 0.1:2:2; a molar ratio X of the heteroatom (Si) is $0.1/4.1 = 0.0243$; and each of molar ratios of y (Al atom) and z (P) is $2/4.1 = 0.488$, which overlap with the claimed range (p18, lines 1-4).

In regard to claims 2,9,10,43,50 and 51, Meier et al. disclose that the framework density of SAPO-37 is 12.7 T/l,000A³ (p.104) and this range overlaps with the claimed range and used for heat pump as described in the disclosure. Table 1 of Komarneni et al. presents several type of CHA descriptions and gel compositions.

In regard to claims 3 and 44, Mizota et al. disclose the preferred mean particle diameter of 0.1-20 micrometers.

In regard to claim 41, Hiroyuki discloses the use of the zeolite heat pump for vehicles.

In regard to claims 7 and 48, Meier et al. disclose the intensity area ratio as showing at the end the reference as marked of (within the Meier et al.).

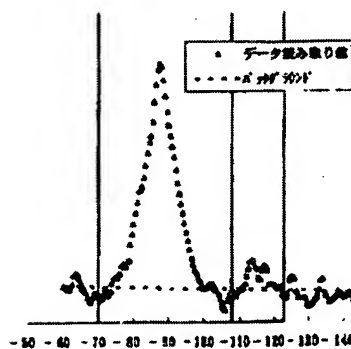
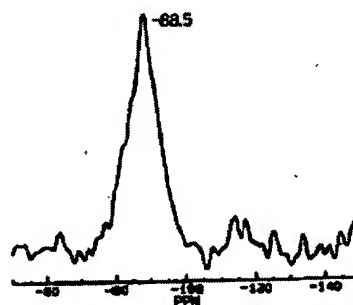
2002-175356 [受付日]平成18.05.30 1/

【添付書類】

100-443887-100

【物件名】 参考資料 1

か説および再水和したSAPO-17サンプルの ^{29}Si -NMRのプロファイルを市販の基計算ソフトにデジタルデータとして取り込み（図4参照）、請求項1に関連する信号強度の積分強度面積比を求めたところ下のようになります。

$$\frac{(-108 \text{ ppm} \sim -123 \text{ ppm} \text{ の信号強度の積分強度面積})}{(-70 \text{ ppm} \sim -123 \text{ ppm} \text{ の信号強度の積分強度面積})} = 6\%$$


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In regard to claims 8,21,49 and 62, Meier et al. disclose the intensity area ratio as showing at the end the reference as marked as (within the Meier et al.).

【特許】2002-175356 【受付日】平成18.05.30 1/2
【物件名】 参考資料2

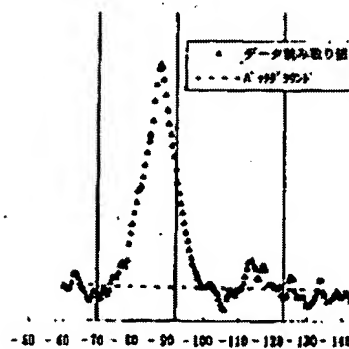
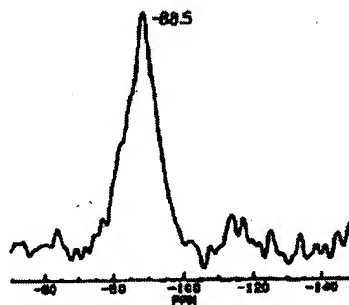
【添付書類】

1. 参考資料2

【物件名】 参考資料2

かほおよび同水和したSAPO-17サンプルの ^{29}Si -NMRのプロファイルを用いた計算ソフトにデジタルデータとして取り込み（下図参照）、請求項2に該当する信号強度の積分強度面積比を求めたところ下のようになります。

$$\frac{(-70 \text{ ppm} \sim -92 \text{ ppm} \text{ の信号強度の積分強度面積})}{(-70 \text{ ppm} \sim -123 \text{ ppm} \text{ の信号強度の積分強度面積})} = 82\%$$



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In regard to claims 11 and 52, Meier et al. disclose the adsorption amount at a relative vapor pressure of 0.05 is 0.03g/g (within the Meier et al.).

日 2002-175356

[受付日] 平成18.05.30

[名]

参考資料 4

【添付書類】

069

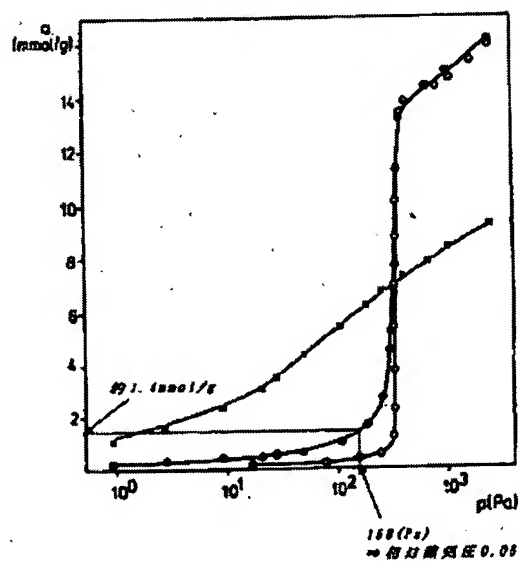
【物件名】

参考資料 4

下図に示す SAPO-17 の吸着等温線 (298 K) から、相対蒸気圧 0.05 ($\Rightarrow 3167 \text{ Pa} \times 0.05 = 158 \text{ Pa}$; 3167 Pa は 298 K での飽和蒸気圧) の吸着量は、下式のように約 0.03 g/g となります。

約 1.4 mmol/g

ここで、水の分子量は 18.0 だがら、

約 $1.4 \text{ mmol/g} / 1000 \times 18.0 =$ 約 0.03 g/g

Allowable Subject Matter

4. Claims 12-19 and 53-60 are allowed.
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chen-Wen Jiang whose telephone number is (571) 272-4809. The examiner can normally be reached on Monday-Thursday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Chen-Wen Jiang
Primary Examiner

